

## 英語

(90 分)

I 次の英文 A～E は全体でひとつづきになっています。これを読んで次の(1)～(15)の問いに答えなさい。それぞれの問いに対して、答えをイ～ニの中から一つ選び、その記号を解答欄にマークしなさい。(36 点)

A

We all know how good being in nature can make us feel. We have known it for centuries. The sounds of the forest, the scent of the trees, the sunlight through the leaves, the fresh, clean air—these things give us a sense of comfort. They ease our stress and worry, helping us to relax and to think more clearly. Being in nature can restore our mood and give us back our energy. How can we experience this feeling that is so hard to ( a ) into words? In Japan, some people practice something called forest bathing, which means bathing in a forest atmosphere, or taking in a forest through our senses. This is not exercise like hiking or jogging. It is simply being in nature, connecting with it through our senses of sight, hearing, taste, smell and touch. Forest bathing is like a bridge; by opening our senses, it bridges the gap between us and the natural world, and it can be done anywhere in the world where there are trees.

B

Never have we been so far from <sup>①</sup>merging with the natural world and so separated from nature. It is estimated that by 2050, 66 percent of the world's population will live in cities. According to a study sponsored by the Environmental Protection Agency, on average, Americans spend 93 percent of their time indoors, and about ten hours a day on social media—more time

than they spend asleep. This has ( b ) what is known as “nature deficit” disorder.” With more people living in cities, working in high-rise buildings, and becoming addicted to their smartphones, many of us are indeed experiencing a nature deficit. This is true for children and adults alike who live in cities around the world. Perhaps the art of forest bathing began in Japan because it is a country that is both urbanized—with the majority of people living in crowded city conditions—and heavily forested.

C

You don't need to spend a long period of time in nature to feel its positive impact on our health. A two-hour forest bath will help you to unplug from technology and slow down. It will bring you into the present moment. Numerous studies have shown the health benefits of forest bathing. In 1982, Japan launched a national program to encourage forest bathing, and in 2004, a formal study of the link between forests and human health began in Iiyama, Nagano Prefecture, a place particularly known ( c ) its abundant green forests. Now, each year, upwards of 2.5 million people walk Japan's forest trails as a way to ease stress and <sup>②</sup>enhance health. “Wherever there are trees, we are healthier and happier,” writes Qing Li, a doctor at a Japanese medical school. It's long been recognized that humans have a biological need to connect with nature. And some 20 years ago, American biologist E.O. Wilson noted that being in nature had a profoundly positive effect on human health. After years of careful study, Li has found that spending time in a forest can reduce anxiety, depression, and anger; strengthen the immune\*\* system and the heart; and boost overall well-being.

D

One of Li's studies looked at whether forest bathing could improve sleep patterns among middle-aged Tokyo office workers who tended to suffer sleep deficiency due to high levels of stress. During the study, participants walked

the same amount of time in a forest that they usually did in a non-forest setting on a normal working day. After a walk in the forest, participants slept better and longer. ( d ), researchers found that afternoon walks were even more beneficial than morning walks. “You sleep better when you spend time in a forest, even when you don’t increase the amount of physical activity you do,” reported Li. Further <sup>③</sup> assessing the effects of time spent in a forest, Li found that the health secrets of trees seem to lie in two things—the higher concentration of oxygen that exists in a forest, as compared to an urban setting, and the presence of plant chemicals called phytoncides—natural oils that are part of a plant’s defense system against bacteria, insects, and fungi.\*\*\* Exposure to increased oxygen and to phytoncides, says Li, can have measurable health benefits for humans. Physiological stress is reduced, for example, and both blood pressure and heart rate are lowered. Evergreens—pine, cedar, spruce, and conifers—are the largest producers of phytoncides, so walking in an evergreen forest seems to have the greatest health benefits.

E

So, how do you go about forest bathing? First, find a spot. Make sure you have left your phone and camera behind. You are going to be walking aimlessly and slowly. You don’t need any devices. Let your body be your guide. Listen to where it wants to take you. Follow your nose. And take your time. It doesn’t matter if you don’t get anywhere. You are not going anywhere. You are simply <sup>④</sup> appreciating the sounds, smells and sights of nature. The ( e ) the power of the forest is in the five senses. Let nature enter through your ears, eyes, nose, mouth, hands and feet. Listen to the birds singing and the breeze rustling in the leaves of the trees. Look at the different greens of the trees and the sunlight filtering through the branches. Smell the fragrance of the forest and breathe in the natural aromatherapy of phytoncides. Taste the freshness of the air as you take deep breaths. Place your hands on the trunk of a tree. Dip your fingers or toes in a stream. Lie on

the ground. Drink in the flavor of the forest and feel a sense of joy and calm. This is your sixth sense, a state of mind. Now you have connected with nature. You have crossed the bridge to happiness. When it comes to finding calm and relaxation, everyone is different. Therefore, it is important to find a place that suits you. Then the effects of the forest will be more powerful. Maybe you have a place in the countryside that reminds you of your childhood or of happy times in the past. This place will be special to you and your connection with it will be strong.

\*deficit : 不足

\*\*immune : 免疫の

\*\*\*fungi : 菌類

(1) Aの空欄aに入るもっとも適切なものを選びなさい。

イ. follow

ロ. leave

ハ. put

ニ. take

(2) Aの内容にもっとも合っていないものを選びなさい。

イ. Forest bathing can be described as a refreshing experience.

ロ. Forest bathing has a calming effect on our mental health.

ハ. Forest bathing helps us feel a connection with nature.

ニ. Forest bathing is similar to other forms of physical exercise.

(3) Bの下線部①の意味にもっとも近いものを選びなさい。

イ. accepting

ロ. becoming

ハ. combining

ニ. discovering

- (4) Bの空欄 bに入るもっとも適切なものを選びなさい。
- イ. come by
  - ロ. originated in
  - ハ. met with
  - ニ. led to
- (5) Bの内容にもっとも合っているものを選びなさい。
- イ. It would be easier for Japanese to enjoy nature if there were more trees in Japan.
  - ロ. Our excessive use of technology has contributed to our spending less time in nature.
  - ハ. Smartphone addiction has caused damage to the natural environment.
  - ニ. The Environmental Protection Agency wants Americans to spend more time in nature.
- (6) Cの空欄 cに入るもっとも適切なものを選びなさい。
- イ. as
  - ロ. for
  - ハ. to
  - ニ. with
- (7) Cの下線部②の意味にもっとも近いものを選びなさい。
- イ. improve
  - ロ. cure
  - ハ. relieve
  - ニ. settle
- (8) Cの内容にもっとも合っていないものを選びなさい。
- イ. Even a short amount of time in nature allows you to enjoy its health

- benefits.
  - ロ. It has just been discovered that humans have a natural connection to nature.
  - ハ. Spending time in nature is a good way to escape our reliance on technology.
  - ニ. The health benefits of spending time in nature are both physical and emotional.
- (9) Dの空欄 dに入るもっとも適切なものを選びなさい。
- イ. As a result
  - ロ. Therefore
  - ハ. In other words
  - ニ. In addition
- (10) Dの下線部③の意味にもっとも近いものを選びなさい。
- イ. accessing
  - ロ. evaluating
  - ハ. reversing
  - ニ. promoting
- (11) Dの内容にもっとも合っているものを選びなさい。
- イ. Evergreen trees in particular are good for our health.
  - ロ. Walking outdoors is good for you no matter where you live and work.
  - ハ. Li believes that you should live in the countryside rather than in a city.
  - ニ. You should try to get more sleep when you practice forest bathing.
- (12) Eの下線部④の意味にもっとも近いものを選びなさい。
- イ. transforming
  - ロ. enjoying

- ハ. satisfying
- ニ. claiming
- (13) Eの空欄 eに入るもっとも適切なものを選びなさい。
- イ. key to remembering
- ロ. key to finding
- ハ. way to analyze
- ニ. way to answer
- (14) Eの内容にもっとも合っているものを選びなさい。
- イ. It is better to forest bathe in the place where we were born.
- ロ. It is a good idea to have a clear goal and plan when you try forest bathing.
- ハ. The degree to which we experience the benefits of forest bathing depends on where we do it.
- ニ. People who are not aware of their senses can better experience forest bathing.
- (15) A～Eまでの文章にもっとも適切なタイトルを選びなさい。
- イ. The Future of Forest Bathing in Japan
- ロ. Forest Bathing Past and Present
- ハ. The Best Way to Enjoy Forest Bathing
- ニ. The Health Benefits of Forest Bathing

- II 次の英文を読んで、(1)～(8)の問いに答えなさい。(5)と(7)を除いて、それぞれの問いに対して答えをイ～ニの中から一つ選び、その記号を解答欄にマークしなさい。(5)と(7)は指示にしたがって解答しなさい。(27点)

Between childhood and adulthood, humans go through a lot of changes—jobs, fashion choices and relationships. Researchers have tried to find out whether, as people grow older, their personality also changes. Personality is the pattern of thoughts, feelings, and behaviors particular to a person. People tend to think of personality as fixed, but according to researchers who study how people think and behave, that's not how it works. "Personality is a developmental phenomenon. It's not just a fixed thing that you're stuck with and can't get over," said Brent Roberts, a psychologist at the University of Illinois. However, this does not mean that you're a different person each day. In the short term, our personality is ( a ) and changes can be virtually unnoticeable.

In 2000, researchers published a paper in the journal *Psychological Bulletin*, in which they reported a pattern of consistency in our core personality traits begins around age three. Research suggests that our personality as children—for example, whether we're easygoing or likely to lose our temper, eager or <sup>①</sup>reluctant to approach strangers—corresponds to adult personality traits such as openness to new experiences or a tendency toward depression.

( b ) this finding, our personality slowly changes over time. Roberts suggests that "you don't notice it on a five-to-ten-year time scale, but in the long term, it becomes pronounced." In 1960, psychologists surveyed over 440,000 high school students in the US—around five percent of all students in the country at that time. The students answered questions about everything from how they <sup>②</sup>reacted to emotional situations to how efficiently they got work done. Fifty years later, researchers re-surveyed 1,952 of these former students. The results showed that <sup>③</sup>participants, now in their 60s,

scored much higher than they had as teenagers on questions measuring self-confidence and leadership. Again and again, long-term studies have produced ( c ) results. Personality tends to get “better” over time. Psychologists call it “the maturity principle.” People become more emotionally self-controlled, agreeable, and responsible as they grow older. “The average self-control of a thirty-year-old is higher than that of a twenty-year-old,” said Brent Donnellan, a professor of psychology at Michigan State University.

So why does our personality change over time? Evidence suggests it's not due to dramatic life events, such as marriage, the birth of a child or the loss of a loved one. <sup>④</sup> Some psychologists suggest that the personality we have at the time such events occur is actually reinforced. Instead, changes in society's ( d ) of us and new life experiences, such as going to university or entering the work force, slowly introduce us to social rules and patterns of acceptable behavior, which leads to changes in our personality. Depending on how you look at it, this is a revelation that's either unsettling or hopeful. Personality does change, progressively and consistently, raising the question, “How much of a different person do we become over the course of a lifetime?”

(1) 空欄 a に入るもっとも適切なものを選びなさい。

- イ. dynamic
- ロ. stable
- ハ. variable
- ニ. weak

(2) 下線部①の単語のもっとも強いアクセント（強勢）がある母音の発音が、イ～ニの単語のもっとも強いアクセント（強勢）がある母音の発音と一致するものの一つを選びなさい。

- イ. above
- ロ. solution
- ハ. manage

ニ. stadium

(3) 空欄 b に入るもっとも適切なものを選びなさい。

- イ. Beyond
- ロ. Prior to
- ハ. Thanks to
- ニ. Despite

(4) 下線部②の意味にもっとも近いものを選びなさい。

- イ. agreed
- ロ. contributed
- ハ. objected
- ニ. responded

(5) 下線部③を日本語に訳して、解答欄に書きなさい。

(6) 空欄 c に入るもっとも適切なものを選びなさい。

- イ. different
- ロ. shocking
- ハ. similar
- ニ. unclear

(7) 下線部④を日本語に訳して、解答欄に書きなさい。

(8) 空欄 d に入るもっとも適切なものを選びなさい。

- イ. commands
- ロ. expectations
- ハ. patterns
- ニ. rights

III 次の(1)~(12)の空欄に入るもっとも適切なものをイ~ニの中から一つ選び、その記号を解答欄にマークしなさい。(24点)

- (1) She was determined to finish her project in a week, ( ).
- イ. it is difficult however  
ロ. it was difficult however  
ハ. no matter how difficult it is  
ニ. no matter how difficult it was
- (2) No sooner ( ) arrived home than he started to make dinner for us.
- イ. had my father  
ロ. has my father  
ハ. my father had  
ニ. my father has
- (3) As ( ) her, Ms. Hearn didn't come to the meeting on time.
- イ. was often the case with  
ロ. the often case is with  
ハ. the case often with  
ニ. with often the case is
- (4) If we had been informed of the situation in advance, we ( ) placing orders.
- イ. are stopping  
ロ. could have stopped  
ハ. will have stopped  
ニ. have stopped
- (5) It is said that increased labor costs can ( ) the rate of inflation.
- イ. arise

- ロ. be rising  
ハ. raise  
ニ. rise
- (6) The man sitting next to me barely heard ( ) the announcement said.
- イ. that  
ロ. what  
ハ. which  
ニ. whom
- (7) The more she worked on the mathematics problem, ( ) she became.
- イ. as confused  
ロ. as confusing  
ハ. the more confused  
ニ. so confusing
- (8) I ( ) long distances in mountainous areas.
- イ. accustom to walk  
ロ. accustom to walking  
ハ. am accustom to be walking  
ニ. am accustomed to walking
- (9) A fishing license ( ) fish for trout in this region.
- イ. is required to  
ロ. is requiring for  
ハ. requires  
ニ. will require for
- (10) She was lying on the bed ( ).

- イ. closed with her eyes
- ロ. her closing eyes with
- ハ. her eyes closing with
- ニ. with her eyes closed

(11) My brother ( ) good results on his exams if he were more diligent.

- イ. is used to get
- ロ. used to get
- ハ. would be gotten
- ニ. would be getting

(12) Nobody ( ) to say, the briefing session was closed.

- イ. have any more
- ロ. had no more
- ハ. having any more
- ニ. having no more

IV 次の(1)と(2)の日本語の文を英訳して、解答欄に書きなさい。(13点)

- (1) 私は科学の発展について詳しく説明している本をこれまでたくさん読んできた。
- (2) 親たちは、子どもが携帯電話を持つことを認めるべきかどうかについて話し合った。

## 数学

### ◀ 家政学部 ▶

(70分)

I 座標平面上において、放物線  $y = 4x^2 - 5x + 2$  と直線  $y = 3x - 1$  の2つの交点を P, Q とし、それぞれの  $x$  座標を  $p, q$  ( $p < q$ ) とする。また、 $y = ax^2 + bx + c$  で表される放物線  $C$  が2点 P, Q を通るとき、次の問いに答えよ。ただし、 $a, b, c$  は定数であり、 $a < 0$  とする。

(1)  $p, q$  の値を求めよ。

(2)  $b, c$  を  $a$  の式で表せ。

(3) 放物線  $C$  と  $x$  軸および2直線  $x = p, x = q$  で囲まれた部分の面積が  $\frac{a^2}{18}$  であるとき、 $a$  の値を求めよ。